

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-42. canceled.

43. (new) A method for identifying compounds that modulates adipocyte differentiation, wherein (i) a test compound is contacted with a population of genetically modified pre-adipocyte cells comprising a recombinant nucleic acid coding a *REV-ERB ALPHA* receptor and (ii) adipocyte differentiation of said cells is measured or determined, allowing identification of compounds that modulate adipocyte differentiation.

44. (new) A method according to claim 43, wherein the test compound is contacted with cells overexpressing the *REV-ERB ALPHA* receptor in the presence of at least one activator of a receptor involved in the adipocyte differentiation process.

45. (new) A method according to claim 43, wherein the test compound is contacted with cells overexpressing the *REV-ERB ALPHA* receptor in the presence of at least one activator of the PPAR GAMMA receptor.

46. (new) A method according to claim 43, wherein the test compound is contacted with cells overexpressing the *REV-ERB ALPHA* receptor in the presence of at least one activator of a receptor involved in the adipocyte differentiation process, which is selected in the group consisting of thiazolidinediones, N-(2-benzoylphenyl)-L-tyrosines and 15-deoxy-delta 12,14-prostaglandin J2.

47. (new) A method according to claim 43, wherein the test compound is contacted with cells overexpressing the *REV-ERB ALPHA* receptor in the presence of at least one activator of a receptor involved in the adipocyte differentiation process, which is selected in the group consisting of rosiglitazone, troglitazone, englitazone, ciglitazone, pioglitazone, KRP-297

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48. (new) A method according to claim 43, wherein the test compound is contacted with genetically modified pre-adipocyte cells in the presence of at least one activator of a gene involved in the adipocyte differentiation process.

49. (new) A method according to claim 43, wherein the test compound is contacted with genetically modified pre-adipocyte cells in the presence of at least one activator of the PPAR gamma gene.

50. (new) A method according to claim 49, wherein the test compound is contacted with genetically modified pre-adipocyte cells in the presence of at least one activator of the PPAR gamma gene selected in the group of C/EBP beta, C/EBP delta and ADD1 (SREBP1c).

51. (new) A method according to claim 43, wherein the *REV-ERB ALPHA* receptor comprises sequence SEQ ID NO : 4 or a fragment or functional variant thereof.

52. (new) A method according to claim 43, wherein the recombinant nucleic acid comprises sequence SEQ ID NO : 3 or a fragment thereof.

53. (new) A method according to claim 43, wherein the recombinant nucleic acid further comprises sequence SEQ ID NO : 1 or a fragment thereof comprising sequence SEQ ID NO : 2.

54. (new) A method according to claim 43, wherein the recombinant nucleic acid is incorporated in a plasmid vector.

55. (new) A method according to claim 43, wherein the recombinant nucleic acid is incorporated in a viral vector.

56. (new) A method according to claim 43, wherein the recombinant nucleic acid is integrated in the cellular genome.

57. (new) A method according to claim 43, wherein adipocyte differentiation is measured (i) by staining the differentiated cells, (ii) by determining fatty acid transport or synthesis, or (iii) by determining the expression of at least one marker specific of differentiated adipocytes.

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58. (new) A method according to claim 43, wherein differentiation is measured or determined in step (ii) is compared with adipocyte differentiation of said same pre-adipocyte cells in the absence of said test compound.

59. (new) A method for identifying compounds that modulate adipocyte differentiation, wherein said method comprises (i) contacting a test compound and a nucleic acid comprising sequence SEQ ID NO : 1 or a functional equivalent thereof, in the presence of the PPAR GAMMA receptor, (ii) verifying a binding of the PPAR GAMMA receptor to said nucleic acid, the test compounds modulating said binding of the PPAR GAMMA receptor being compounds modulating adipocyte differentiation.

60. (new) A method for identifying compounds that modulate adipocyte differentiation, wherein said method comprises contacting a test compound and the PPAR GAMMA receptor with a reporter system comprising (i) a transcriptional promoter comprising one or more copies of sequence SEQ ID NO : 1 or a functional variant thereof and (ii) a reporter gene, and evaluating the activity of the test compound by measuring its effect on expression of the reporter gene induced by the PPAR GAMMA receptor.

61. (new) A genetically modified pre-adipocyte cell, wherein said cell comprises a recombinant nucleic acid coding a *REV-ERB ALPHA* receptor, said recombinant nucleic acid further comprising sequence SEQ ID NO : 1 or a fragment thereof comprising sequence SEQ ID NO : 2.

62. (new) A cell according to claim 61, wherein the *REV-ERB ALPHA* receptor comprises sequence SEQ ID NO : 4 or a fragment or functional variant thereof.

63. (new) A cell according to claim 61, wherein the recombinant nucleic acid comprises sequence SEQ ID NO : 3 or a fragment thereof.

64. (new) A cell according to claim 61, wherein the recombinant nucleic acid is incorporated in a plasmid vector.

65. (new) A cell according to claim 61, wherein the recombinant nucleic acid is incorporated in a viral vector.

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66. (new) A cell according to claim 61, wherein the recombinant nucleic acid is integrated in the cellular genome.

67. (new) A genetically modified pre-adipocyte cell, wherein said cell comprises a recombinant nucleic acid coding a *REV-ERB ALPHA* receptor, the recombinant nucleic acid being incorporated in a viral vector or integrated in the cellular genome.

68. (new) A method for preparing a pre-adipocyte cell according to claim 61, wherein a recombinant nucleic acid coding a REV ERB ALPHA receptor is introduced into a pre-adipocyte cell.

69. (new) A method according to claim 68, wherein the pre-adipocyte cells are selected from among the cell lines 3T3-L1, 3T3-F442A, ob17 and ob1771.

70. (new) A method according to claim 68, wherein the nucleic acid is introduced by transfection with a plasmid vector.

71. (new) A method according to claim 68, wherein it comprises cotransfecting the cells with a plasmid vector comprising said recombinant nucleic acid and a plasmid vector comprising an antibiotic resistance gene, and wherein the cells are selected for their resistance to said antibiotic and for their expression of said recombinant nucleic acid.

72. (new) A method according to claim 68, wherein the nucleic acid is introduced by transfection with a plasmid vector additionally comprising an antibiotic resistance gene and a eukaryotic origin of replication, and wherein the cells are selected for their resistance to said antibiotic and for their expression of said recombinant nucleic acid.

73. (new) A method according to claim 68, wherein the nucleic acid is introduced by infection with a viral vector.

74. (new) A method according to claim 68, wherein the nucleic acid is introduced by infection with a recombinant adenovirus or retrovirus.

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75. (new) A method according to claim 68, wherein the recombinant nucleic acid comprises SEQ ID No : 3 or a fragment thereof.

76. (new) A method according to claim 68, wherein the recombinant nucleic acid additionally comprises one or more transcriptional regulatory regions, typically a transcriptional promoter and/or terminator.

77. (new) A method according to claim 68, wherein the recombinant nucleic acid additionally comprises the sequence SEQ ID NO : 1 or a fragment thereof comprising the sequence SEQ ID NO : 2.

78. (new) A method according to claim 68, wherein, after infection or transfection, stable pre-adipocyte cell lines in culture are selected.

79. (new) A defective recombinant virus, wherein it comprises in its genome a nucleic acid coding a *REV-ERB ALPHA* receptor.